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WHAT FRACTION OF A SET OF CANDIDATE AREAS SHOULD BE PROTECTED?

PROBLEM 3 HORACIO BOWN (2009)

Let's say we have a set of potential candidate areas that should be protected. The potential reserves are: Black River (2654 ha), Tussock Land (843 ha) and Dingo Prairie (5062 ha). An average biodiversity value (index) is available for each area as well as the cost involved for protecting the candidate areas both on a per hectare basis (Table below).

	Black River	Reserves Tussock Land	Dingo Prairie
Biodiversity Index (units / ha)	5	2.5	1
Conservation Cost (\$ / ha / yr)	10	7	6

The available budget is 30000 US\$ per year for protecting fractions of any combination of reserves to maximize biodiversity measures. What if reserves could be either protected or not?, How this would change the solution of the problem?.